| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/902,593 | 07/12/2001 | Eugenio Martinez-Uriegas | 38P.1029 | 9422 |

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| 5514 | 7590 | 09/20/2004 | |

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| EXAMINER |
|---|
| ALAVI, AMIR |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2621 | |

DATE MAILED: 09/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)☒ Responsive to communication(s) filed on *12 July 2001*.

2a)☐ This action is **FINAL**.  2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11 and 14* is/are rejected.

7)☒ Claim(s) *12,13 and 15-23* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

## Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 October 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All  b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date *5,7*.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

# DETAILED ACTION

## Claim Rejections - 35 USC § 102

> The following is a quotation of the appropriate paragraphs of 35

> U.S.C. 102 that form the basis for the rejections under this section made

> in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

> Claims 1-11 and 14 are rejected under 35 U.S.C. 102(e) as being

> anticipated by Nakauchi et al. (USPN     6,198,843 B1).

Regarding claim 1, Nakauchi et al., disclose: analyzing spatial frequency content of the original image (Please note, column 5, lines 17-18. As indicated the present invention is based on such a finding on the spatial frequency characteristics of the human visual system); associating regions of the original image with one of the plural gamut mapping algorithms based on the analysis of spatial frequency content (Please note, column 5, lines 19-20. As indicated chromaticity components and luminosity components are filtered at different peak frequencies. In this regard, in a particular color space, such as YCC, having three distinct regions corresponding to chromaticity and luminance components, herein based on different peak frequencies); and gamut mapping each region associated with a gamut mapping algorithm using the associated gamut mapping algorithm so as to produce a gamut mapped image of the original image (Please note, column5, lines 23 and 27-29. In this regard, wherein disclosing a compression algorithm, a color adjustment algorithm, a color correction algorithm and a matching algorithm, are all representatives of plural gamut mapping algorithms).

Regarding claim 2, Nakauchi et al., disclose, wherein constructing one or more spatial masks which mask regions of the original image for gamut mapping by a first gamut mapping algorithm and which mask regions of the original image for gamut mapping by a second gamut mapping algorithm (Please note, column 5, lines 19-20. As indicated chromaticity components and luminosity components are filtered at

different peak frequencies. In this regard, herein, the filtering utilization does the

masking functionality).

Regarding claim 3, Nakauchi et al., disclose, wherein segregating

regions of the original image into busy regions and smooth regions (Please note,

column 5, lines 19-20. As indicated chromaticity components and luminosity

components are filtered at different peak frequencies. In this regard, when having a high

peak frequency, representative of lots of detail, is indicative of a busy region, by the

same token, having a low peak frequency, representative of blurriness, is indicative of

smooth region).

Regarding claim 4, Nakauchi et al., disclose, wherein constructing

one or more spatial masks which mask regions of the original image for gamut mapping

by a first gamut mapping algorithm and which mask regions of the original image for

gamut mapping by a second gamut mapping algorithm (Please note, column 5, lines 19-

20. As indicated chromaticity components and luminosity components are filtered at

different peak frequencies. In this regard, herein, the filtering utilization does the

masking functionality).

Regarding claim 5, Nakauchi et al., disclose, wherein gamut mapping

by a first gamut mapping algorithm for smooth regions and gamut mapping by a second

gamut mapping algorithm for busy regions (Please note, column 5, lines 27-30. As

indicated luminosity and chromaticity are separately corrected so as to achieve

matching of suitable frequency components on a visual sensitivity as at a higher level as

possible. In this regard, we discussed earlier that different frequency components are indicative of busy and smooth regions and separately correcting are indicative of different correction algorithms, herein, a correction algorithm is indeed a gamut mapping algorithm).

Regarding claim 6, Nakauchi et al., disclose, wherein constructing one or more spatial masks which mask regions of the original image for gamut mapping by a first gamut mapping algorithm and which mask regions of the original image for gamut mapping by a second gamut mapping algorithm (Please note, column 5, lines 19-20. As indicated chromaticity components and luminosity components are filtered at different peak frequencies. In this regard, herein, the filtering utilization does the masking functionality).

Regarding claim 7, Nakauchi et al., disclose, wherein the first gamut mapping algorithm is a clipping algorithm and wherein said second gamut mapping algorithm is a compression algorithm (Please note, column 5, lines 23 and 27. Herein, color adjustment algorithm is a type of clipping algorithm, on line 23 indication of compression algorithm).

Regarding claim 8, Nakauchi et al., disclose, wherein constructing one or more spatial masks which mask regions of the original image for gamut mapping by a first gamut mapping algorithm and which mask regions of the original image for gamut mapping by a second gamut mapping algorithm (Please note, column 5, lines 19-20. As indicated chromaticity components and luminosity components are filtered at

different peak frequencies. In this regard, herein, the filtering utilization does the masking functionality).

Regarding claim 9, Nakauchi et al., disclose, wherein said analyzing step uses a spatial frequency analysis tool selected from the group consisting of discrete cosine transform, discrete Fourier transform, and discrete wavelet transform (Please note, column 5, lines 17-18, in correlation to equation 1).

Regarding claim 10, Nakauchi et al., disclose, wherein associating regions of the original image with one of the plural gamut mapping algorithms based on coefficients derived in said spatial frequency analysis tool (Please note, column 7, line 54).

Regarding claim 11, Nakauchi et al., disclose, wherein transforming the original image into a perceptual color space (Please note, column 7, line 38. L*a*b*, being a perceptual color space).

Regarding claim 14, Nakauchi et al., disclose, wherein transforming the original image into a viewing condition independent color space (Please note, column 7, line 38. L*a*b*, being an independent color space).

## Allowable Subject Matter

➤ Claims 12-13 and 15-23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

➤ The following is a statement of reasons for the indication of allowable subject matter: None of the prior art disclose or fairly suggest wherein the step of constructing one or more spatial masks based on individual ones of the channels in the perceptual color space, and wherein said associating step associates regions of the original image with one of the plural gamut mapping algorithms based on a pre-designed threshold value in the spatial masks.

# Other prior art cited

➢ The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

Butler (USPN    6,720,973 B2) is pertinent as teaching method and

apparatus for transforming color gamut from one color space to another.

Qiao (USPN    6,719,392 B2) is pertinent as teaching optimized color

ranges in gamut mapping.

Balasubramanian et al. (USPN    6,646,762 B1) is pertinent as teaching

gamut mapping preserving local luminance differences.

McCann et al. (USPN    6,516,089 B1) is pertinent as teaching in-gamut

image reproduction using spatial comparisons.

Balasubramanian et al. (USPN    6,414,690 B1) is pertinent as teaching

gamut mapping using local area information.

Newman (USPN    6,633,668 B1) is pertinent as teaching device

independent image compression and color management.

# Contact Information

➤ Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Amir Alavi whose telephone number is (703) 306-5913.

➤ The Examiner can normally be reached on Monday through Thursday from 8:00 a.m. to 6:30 p.m. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Leo Boudreau, can be reached at (703) 305-4706.

Any response to this action should be mailed to:
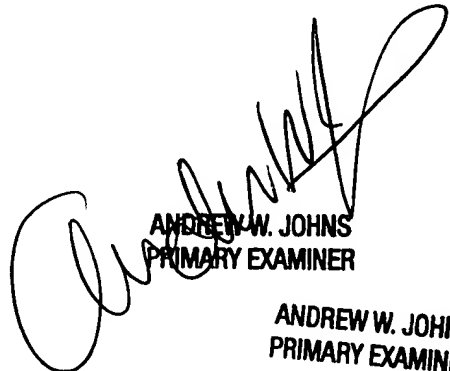
Assistant Commissioner for Patents

Washington, D.C. 20231

**Or faxed to:**

(703) 872-9306, ("draft" or "informal" communications should be clearly labeled to expedite delivery to Examiner)

**Hand delivered responses** should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist). Any inquiry of a general nature or relating to the status of this application should be directed to the T.C. Customer Service Office whose telephone number is (703) 306-0377.

AA
Group Art Unit 2621
17 September 2004

ANDREW W. JOHNS
PRIMARY EXAMINER

ANDREW W. JOHNS
PRIMARY EXAMINER